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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/860,763	09/09/1998	ISKANDER M. TOKMULIN	P-9701-ISK	9367

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09/09/2003

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EXAMINER

ZERVIGON, RUDY

ART UNIT

PAPER NUMBER

1763

DATE MAILED: 09/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

08/860,763

Applicant(s)

TOKMULIN ET AL.

Examiner

Rudy Zervigon

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,3 and 5-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,3 and 5-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7/1/2003. 6) ☐ Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2, 3, and 5-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over ✓ Ahonen (USPat. 5,308,461) in view of JP05-033534 (Applicant's IDS reference) and ✓ Sarma et al (USPat. 4,343,830).

Ahonen teaches a device (Figure 1) for treating wafers (54,52, Figure 1) the device includes:

- i. a plasma jet (42; Fig.1) for treating the wafers
- ii. a set of holders (60,62; Fig.1) having a horizontal platform for wafers to be treated in the plasma jet (column 3, lines 23-43)
- iii. the plasma jet and wafer holders being displaced with respect to each other (column 3, lines 23-43), and the plasma jet and the wafer holders may be in or out of contact with each other (see rotation arrows; Figure 1);
- iv. wafer holders (60, 62; Figure 1) that have a drive (drives not shown – inherent, see rotation arrows; Figure 1) for effecting angular displacement thereof (column 3, lines 23-45; Figure 2) such that each of the holders being made in the form of a horizontal platform (Figure 1) mounted for rotation about an axis passing through a geometric

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center thereof and perpendicular to a plane of the platform (Figure 2; "Direction of Rotation of Holder")

- v. the plasma jet generator being located such that a plasma jet is directed upwardly (Figure 1) in respect of a plane of the horizontal platforms (60, 62; Figure 1) of the wafer holders
- vi. a closed chamber (20; Figure 1) having a gas exchange system (38, 22, 80; Figure 1; column 3, lines 4-22)

Ahonen does not teach:

- i. that the plasma jet generator is mounted on an adjustable height base
- ii. a manipulator
- iii. storage devices
- iv. a door having a movable shutter, where the manipulator is located in contact with the storage devices directly and with the wafer holder indirectly through the chamber door
- v. cooling means associated with each horizontal platform in fluid communication with a gas supply means and located such that the resulting gas flows permit the positioning of the platform near a holder
- vii. a window for transporting wafers into and out of the chamber
- vi. The wafer holder is provided with a limiter mounted at an angle α other than 90°
- vii. gas and cooling means associated with each horizontal platform in fluid communication with a gas supply means and located such that the resulting gas flows permit the positioning of the platform near a holder

JP05-033534 (Applicant's IDS reference) shows a non-contact wafer ("W"; Figure 4) holder ("W") including:

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- viii. gas and cooling means (21, 5; Figure 4) associated with a horizontal platform (2) in fluid communication with a gas supply means (21) and located such that the resulting gas flows permit the positioning of the platform near a holder – that the claimed apparatus configuration effects “improved cooling of individual area over the wafer surfaces while avoiding the need to provide additional cooling of the plasma generator due to natural convection of the hot gasses” is a statement of intended use of an apparatus. Because the holder is structurally identical to the wafer holders of the present application, holder provides the intended use.
- ix. cooling means (21, 5; Figure 4) associated with the horizontal platform (2) in fluid communication with a gas supply means (21) and located such that the resulting gas flows permit the positioning of the platform near a holder
- The wafer holder having a plurality of vortex chambers (5,4)
 - The wafer holder is provided with a limiter mounted at an angle $\alpha = 90^\circ$

Sarma et al teaches a multi-stage wafer processing apparatus (Figure 5) including:

- viii. A plasma jet generator (43) is mounted on an adjustable height base (44; See bolts attaching base 44 to peripheral transport chambers 51,52)
- ix. a manipulator (57, 64)
- x. storage devices (boats carrying 56, 66)
- xi. a door having a movable shutter (59), where the manipulator is located in contact with the storage devices directly and with a wafer holder (47) indirectly through the chamber door
- x. a window (ports between 51/44 and 44/52) for transporting wafers into and out of the chamber (44)

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It would have been obvious to one of ordinary skill in the art at the time the invention was made for Ahonen to replace his wafer holders (60,62; Fig.1) with JP05-033534's wafer holder, including changing the mounting angle $\alpha = 90^\circ$ between the wafer holder's horizontal platform and the limiter to an angle α other than 90° , and to add the automation components taught by Sarma.

Motivation for Ahonen to replace his wafer holders (60,62; Fig.1) with JP05-033534's wafer holder, including changing the mounting angle $\alpha = 90^\circ$ between the wafer holder's horizontal platform and the limiter to an angle α other than 90° , and to add the automation components taught by Sarma is to provide alternate and equivalent means for wafer support, with dimensional optimization, and to produce a larger throughput of wafers respectively.

Response to Arguments

3. Applicant's arguments filed August 22, 2003 have been fully considered and they are persuasive.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (703) 305-1351. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official after final fax phone number for the 1763 art unit is (703) 872-9311. The official before final fax phone number for the 1763 art unit is (703) 872-9310. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to

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the Chemical and Materials Engineering art unit receptionist at (703) 308-0661. If the examiner

~~can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (703) 308-~~

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Gregory L. Mills
9/8/03